

Bosworth (F. H.)

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CONCERNING

NASAL CATARRH.

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FRANK H. BOSWORTH, M.D.,

*Clinical Lecturer on Diseases of the Throat in the Bellevue Hospital
Medical College, New York.*

[Read before the New York Academy of Medicine, October 21, 1880.]

Reprinted from THE MEDICAL RECORD, November 6, 1880.

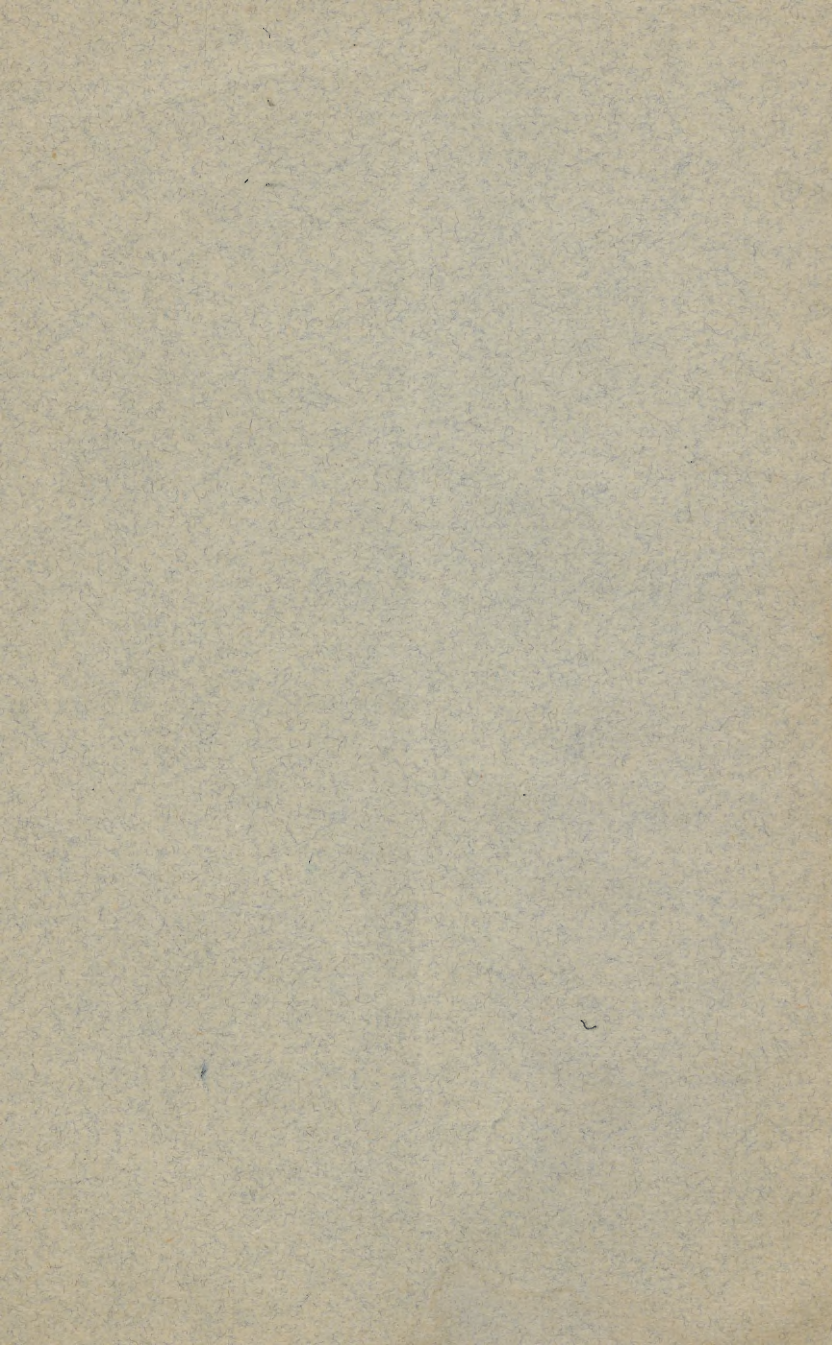


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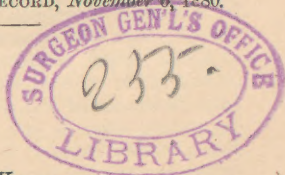
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SOME OF THE UNSETTLED QUESTIONS CONCERNING NASAL CATARRH.

Mr. President and Gentlemen of the Academy of Medicine:

I HAVE designedly announced my subject as "Some of the Unsettled Questions Concerning Nasal Catarrh," with the object of bringing before you certain conclusions which an exceptional experience in dealing with this troublesome disease has led me to adopt; and also that I might elicit a discussion which it is my hope may serve somewhat to throw more light upon the subject, and place on a better footing some of these vexatious questions.

The main points which I desire to discuss are: first, What is nasal catarrh? second, What are its tendencies? third, How can we treat it? and fourth, Can we cure it?

The first question that we have to decide is, What is nasal catarrh?

If we glance over the literature of the subject, we meet with a host of names which in their multitude certainly add nothing to the clearness of our nomenclature of diseases. Among these I might mention naso-pharyngeal catarrh, post-nasal catarrh, chronic pharyngitis, retro-pharyngeal catarrh, glandular hypertrophy of the vault of the pharynx, adenoma of the vault of the pharynx, clergyman's sore throat, follicular pharyngitis, hypertrophic nasal catarrh, nasal stenosis, infiltration of the septum of the nares, etc. I may have omitted some, but these are all that occur to me. There is but one disease embraced under all these names, and it is nasal catarrh, and I prefer to retain the old name, not only out of deference to a very ancient usage, but also from the fact that it defines the disease more simply and quite as completely as any other.

The question arises, first, what region is involved in the disease. If we glance at a sectional diagram of the head, it will be seen that the border of the soft palate marks the boundary line between two avenues of the upper air-passages which are totally distinct and separate, both as regards their functions and the influence of their surroundings. In that portion below the border of the palate we have a region which is being constantly impinged upon and swept by the passage of food and drink, the result of which is necessarily that an accumulation of mucus is prevented, the surface of the membrane is kept comparatively clean, and the mouths of the follicles are kept open. On the other hand, we find that the region which is above the border of the soft palate is subjected to entirely different influences. It is traversed by the current of air in respiration, and virtually nothing more. It of course is endowed with certain functions in phonation, and is also the organ of the sense of smell; but in this respect, for the present, it does not concern us. It is lined with a mucous membrane richly endowed with glands, and there is constantly going on a secretion of mucus, together with an evolution of epithelium in the process of growth. Nature has provided but one method by which this accumulation is gotten rid of; the epithelial cells are endowed with ciliae, by which the mucus and worn-out epithelium are carried toward the outlets of the passage.

The essential difference between the two regions, therefore, lies in the fact that the lower pharynx is constantly traversed and impinged upon by solids and fluids, while the upper passage is only traversed by the current of air in respiration. Hence the lower region is kept comparatively clear of accumulations, while in the upper region the mucus secreted, and the worn-out epithelium tend to accumulate in the sinuous passages, and remain in contact with its lining membrane. Especially is this true if, as the result of chronic inflammation, the ciliae with which the epithelial coat of the membrane is endowed be destroyed. As the result, therefore, of this marked difference of function and environment, it seems to

me a fair conclusion that the true boundary line between these two regions should be drawn at the border of the palate.

Now, anatomy teaches that the nasal cavities ex-

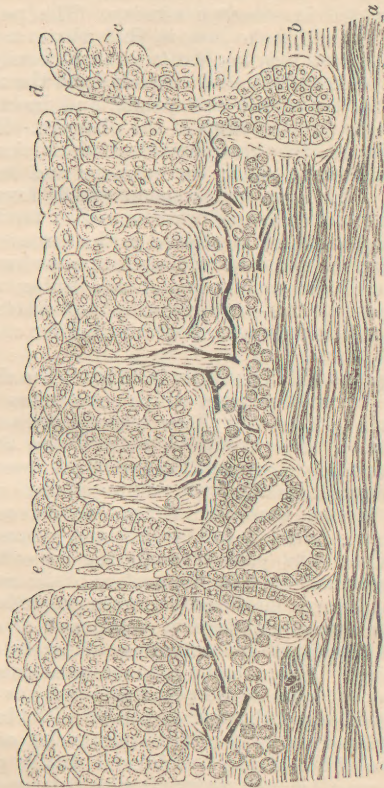


FIG. 1.—Section of a mucous membrane: *a*, submucous layer of connective tissue; *b*, mucous membrane proper, containing blood-vessels, nerves, closed follicles, connective and elastic tissue fibres, and marked by villi; *c*, epithelial layer; *d*, simple follicle; *e*, racemose gland.

tend from the nostrils, anteriorly to the two oval openings of the posterior nares, where they open into

the pharynx; and that the pharynx is that cavity which extends from the basilar process of the occipital bone to the entrance into the larynx and œsophagus. As the result of this anatomical division, and based upon it, we have a classification of diseased conditions which is utterly confusing. The point, then, which I would make first, is, that whatever the anatomical division may be, the true nasal cavity is the one I have described, and extends from the nostril to the border of the soft palate, and includes what we usually call the vault of the pharynx. This division is justified by the physiological division of the parts, as I have said; furthermore, and more prominently still, it is the division which, from a pathological point of view, must be made; for it is this whole region which is affected in the disease we are discussing. Nasal catarrh, therefore, is a chronic inflammation of the mucous membrane lining that portion of the upper air-passages, which extends from the nostrils anteriorly, to the posterior border of the soft palate.

The next point which presents is, What is the character of the morbid process which constitutes the disease? In Fig. 1 there is shown a section of a mucous membrane. There will be noticed the three layers of which it is composed: a basement layer of connective tissue, a middle layer, composed of fibrous and elastic tissue, muscular fibres, blood-vessels, rounded, closed follicles, and simple and racemose follicles, whose ducts pass through the superficial epithelial layer, and open on the surface of the membrane. This layer is marked by minute projections, or villi. The superficial layer is composed of epithelial cells, displayed in a number of layers one upon the other. Now, when a mucous membrane is acutely inflamed, what takes place is briefly as follows: the blood-vessels become distended with blood, enlarged and tortuous; the white corpuscles accumulate at the sides of the vessels, and finally pass through the vascular wall, carrying with them a certain amount of liquor sanguinis. These escaped white blood-corpuscles constitute the so-called leucocytes or amœboid corpuscles. In connection with

this, and probably as the result of it, the normal processes of the membranes are stimulated to great nutritive activity. The rounded cells in the mucous membrane proper are proliferated, new epithelial cells are generated, the glands pour out their mucus, and all the normal processes of growth and secretion become enormously exaggerated. This constitutes the acute inflammatory process. Now, in a chronic inflammation, virtually the only difference we recognize is that the hyperæmia of the membrane subsides, but all the exaggerated nutritive processes go on. There is excessive cell-proliferation, there is abnormal secretion, and there is poured out from the surface of the membrane an excessive secretion, which is more or less charged with young, unripe cells, constituting a mucus or muco-purulent discharge, according as the cell-proliferation is active and the secretions become charged with the young cells and worn-out epithelium. Applying this, now, to the membrane lining the nose. As this chronic morbid process goes on we find that it undergoes a form of genuine hyperplasia. Its meshes become infiltrated with these young cells, new connective tissue and elastic tissue fibres are developed, while, at the same time, the superficial or epithelial layer becomes piled up and thickened by the development from beneath of the new epithelial cells, the result of the morbid activity; and we have the whole membrane, in process of time, becoming markedly thickened or hypertrophied, while, at the same time, the secreting organs are pouring out their excessive mucus or muco-purulent discharge.

Now, if we glance at the plate again we will understand how this abnormal deposit of neoplastic tissue in the membrane may, to a certain extent as the result of mere adventitious circumstances, result in one or the other of two very distinct conditions. If the secretory organs of the membrane undergo the same hypertrophy as the other portion of the membrane, we have a genuine hypertrophy of the mucous membrane, characterized prominently by thickening, together with an excessive secretion. If, on the other hand, we have the adventitious results of the morbid

process so distributed in the membrane as to encroach upon its glandular structure we may have an entirely different condition resulting. The glands gradually succumb to the pressure upon them, their activity is destroyed, and they undergo atrophy. The membrane, therefore, becomes deprived of its supply of normal mucus, and we have a dry catarrh.

We thus have the explanation of the first division we are compelled to make in the classification of nasal catarrh. In the first variety we have a hypertrophy of the membrane lining the nasal cavity, resulting in a nasal catarrh whose prominent symptoms are excess of secretion with narrowing of the nasal passages. The natural tendency of all nasal secretion is toward the fauces; this is increased by the disposition to constantly draw or snuff back through the nose. The mucus, therefore, accumulates in the upper pharynx, or is drawn down into the fauces and lodges between the palate and wall of the pharynx, giving rise to the feeling of a mass or plug in that region, which is attempted to be dislodged by that disagreeable nasal screatus with which we are familiar. That the main source of the excessive mucus discharge in nasal catarrh is the nasal cavity proper I have repeatedly verified, by arresting it by means of remedies applied to the turbinated bones. If the secretion is excessive there is liable to be the constant dropping in the throat of which patients so often complain.

As a further result of this thickening of the membrane of the nose we have the normal breathing space narrowed—nasal respiration is interfered with. This becomes a source of extreme discomfort to the sufferer, and also compels him to breathe through the mouth. The long-continued action of respiration carried on habitually through the mouth is a prolific source of catarrhal inflammation of the lower pharynx and larynx. Of this fact I think there can be little doubt. This is very well illustrated in the case of a mild acute inflammation in the larynx. Those of us who have suffered from a subacute laryngitis or pharyngitis will recall the effect of a long inspiration through the mouth, giving rise to marked irrita-

tion of the parts with oftentimes an attack of coughing. The explanation of this, of course, is familiar to all. The current of inspired air passing over the blood-warm, moist, and sinuous passages of the nose becomes warmed, moistened, and cleansed in its passage. This does not take place in its passage through the mouth, hence it becomes to an extent irritating to the lining membrane of the larynx and pharynx. This deleterious action of breathing through the mouth, which is compelled by nasal stenosis, explains the frequency with which the throat symptoms in nasal catarrh are complained of by patients, while the nasal disease is, to an extent, overlooked.

This hypertrophic form of nasal catarrh is the one with which we have to deal in the very large majority of cases; and is the one concerning which what I have to say to night relates in the main.

A few words, however, will suffice to explain how the other form of the disease may arise from pathological changes, which are mainly identical in the two forms of the disease.

The essential pathological change in the membrane is a deposit in its meshes of newly developed cells and fibres.

Now, in that form of the disease in which the newly deposited material encroaches upon the glandular structures, we find that their activity is to an extent destroyed, and the membrane is robbed of its normal supply of mucus.

There is, therefore, poured out on its surface a thick mucus which is deficient in its watery constituents, and hence it dries rapidly, forming a thin crust or mass, which adheres closely to the parts beneath. There is thus formed a pellicle upon the membrane covering it and extending over the convexity of the turbinated bones and into the sinuous passages. This pellicle dries under the influence of the current of air passing over it, but it protects the parts beneath, forming, as it does, a complete airtight shield. Secretion goes on beneath it nevertheless, and this secretion is not deprived of its moisture by the current of air, for the air does not reach it. The secretions are imprisoned, undergo degen-

eration, and become fetid and offensive. There is now a purulent discharge established—a discharge which in many cases is almost pure fluid pus. This, I am disposed to think, in many cases serves to infect the membrane as it were, and excites a still further purulent discharge, whose source is largely in the epithelial layer. As this purulent discharge is poured out, the dried pellicle is lifted from the membrane, but the loss of moisture still going on, we have built up those thick, offensive, fetid masses, or crusts, which are dislodged with so much difficulty, and which render this form of the disease so distressing in the intolerable stench which often attends it.

We thus have accounted for the two forms of nasal catarrh by virtually the same pathological change in the onset of the process. These two forms virtually comprise the whole subject. Excluding, of course, syphilis with its attendant ulceration and necrosis; and disease of the accessory cavities, as of the antrum of Highmore, and the frontal sinuses, which constitutes true ozæna, both of which are diseases entirely different from true nasal catarrh.

In this connection it might be mentioned that ulceration in the nasal cavity is not a symptom of nasal catarrh. I have never seen it except in syphilis, scrofula, or some of the blood poisons. With the exception above noted, then, all forms of nasal catarrh may be embraced under the two heads above described. Hypertrophic catarrh, with excess of secretion and narrowing of the passages, and atrophic catarrh, with its resultant fetid discharges. This latter form of the disease I do not propose to further discuss in the necessarily limited province of this paper. The hypertrophic form of the disease, as before stated, is the one which presents for treatment in the large majority of cases, and is the one which will be the subject of what remains to be said.

Another question which may be briefly noticed in this connection is the cause of nasal catarrh; and first, Is there a catarrhal diathesis? We have already the tuberculous, strumous, rachitic, gouty, rheumatic, dartrous, neurotic, and possibly other diatheses.

Shall we add, also, a catarrhal diathesis? It seems to me that those already mentioned have done mischief enough with their confusing and discouraging tendencies. A catarrhal diathesis does not exist. The disease is purely a local one. It occurs at all ages, in both sexes, and in all conditions of birth, color, and social position. It occurs in persons otherwise in the enjoyment of perfect health, and does not seem to be aggravated by an impairment of the general health from intercurrent causes. It occurs in one member of a family to the exclusion of others, and is not hereditary. It may involve one or both nasal cavities, but is often more marked on one side than the other. It occurs in men more frequently than in women, simply because men are more exposed than women. The true explanation of the very great prevalence of the disease may be stated as follows: The upper air-passages, owing to their exposed situation, are extremely liable to take on a mild morbid condition. This is due entirely to the fact that they are exposed to the first ingress of the inspired air, with its varying temperature, humidity, and purity. From its dampness or from its containing particles of dust, irritating vapors, and other deleterious matter, the air we breathe serves to irritate the upper passages, and causes a mild chronic inflammation. As the result of this, the liability to take cold ensues. These attacks serve to aggravate the chronic condition. As months or even years go on there results a chronic catarrh.

It may result from measles or scarlatina, simply because those diseases are attended with an acute coryza, which, from its protracted course, undergoes incomplete resolution, and lapses into the chronic process.

It should be further added that it is essentially a disease of those climates which are characterized by frequent and rapid changes in temperature and great humidity, while in the drier and more equable climate of the tropics it does not prevail to the same extent.

The next question for consideration is, What are the tendencies of nasal catarrh? As already intimated, one of the direct results of the disease in the nasal cavity is the development of a catarrhal inflam-

mation in the pharynx and larynx. This was explained as being due to the deleterious influence of respiration carried on habitually through the mouth, this mode of breathing having become a necessity as the result of the nasal obstruction. This tendency is still further aggravated by the secretions from the nose and upper pharynx passing down the pharyngeal wall, and finally making their way into the laryngeal cavity, where they necessarily act to cause a morbid condition.

Whether there is direct extension of the inflammatory process from the nares to the lower pharynx and larynx I think is very doubtful.

We have then established a chronic inflammation of these organs. The existence of the chronic morbid condition entails an especial liability to take cold from slight provocation,—the so-called liability to take cold I believe in every case to mean that there already exists a mild chronic inflammation, which takes on a renewed activity from a slight exciting cause. As the result of these repeated attacks of acute inflammation, the chronic morbid process becomes aggravated. Each fresh attack undergoes less perfect resolution. Furthermore, as these attacks recur, there is a disposition to their extension farther toward the lungs. Eventually, there sets in a bronchitis, with persistent and troublesome cough. The repeated colds recur with greater frequency, and resolution becomes more protracted and less perfect. The sequence of events, then, is a nasal catarrh, a pharyngitis, a laryngitis, a tracheitis, and finally a bronchitis. That this is a frequent sequence of events, when we consider the very great prevalence of nasal catarrh, I do not of course assert, but that it is a not uncommon occurrence I do not think can be controverted. A nasal catarrh, then, I think we may safely regard as a menace, if nothing more, to the air-passages farther down.

We are frequently asked the question, as physicians, by those suffering from a nasal catarrh, will the catarrh extend to the lungs? I do not think we are justified in answering No to the question. I believe that it is the tendency of the disease in many

cases, and that we should say so. That a given case will necessarily develop into pulmonary disease, of course, cannot be said. That it is a not improbable danger is certainly true.

Aside from any danger that menaces the lungs in the existence of a nasal catarrh, that a chronic laryngeal catarrh arises in a large proportion of cases as the result of the nasal disease cannot be questioned, and this becomes a matter of no little gravity in those who may be dependent on the healthful condition of the vocal apparatus.

We come now to the consideration of by far the most important question which presents itself in connection with the disease, viz., the treatment. The disease, as we have found, consists essentially in a true hypertrophy of the mucous membrane. In connection with the hypertrophy there is abnormal secretion. The two symptoms are virtually one as regards measures of treatment. The removal of the thickened membrane removes the source of the discharge. Hence there is no good reason for discussing separately, measures for the relief of one or the other of these symptoms.

When the nasal douche of Weber or Thudichum was first suggested it was thought that in this rather ingenious device we were finally to be put in possession of a mode of treatment which would enable us to cope successfully with nasal catarrh. I need not say that the douche has proved a most signal failure in accomplishing more than a moderate degree of relief to the more prominent features of the disease.

The stream which enters one nostril passes around the septum and makes its escape through the other nostril. It traverses the passages in a slow and sluggish manner, bathing the lower passage and turbinated bone. That the fluid mounts higher than the middle meatus is questionable. It fails then to thoroughly reach all the parts; it fails to completely cleanse the membrane of its accumulation of mucus; and it exercises but a moderate amount of influence on the diseased tissue. It does nothing more than to relieve in a moderate degree the subjective symptoms of the disease.

Nearly thirty years ago the idea of making local application to the air-passages of fluids in a state of fine atomization was first carried into practice. The methods by which this was accomplished were at first somewhat rude, but the introduction subsequently of the principle of Lewin, and later, that of Bergson, have placed in our hands instruments for the atomization of fluids and for applying them to such parts as we may desire, which are everything that could be wished. The nasal douche failed, and the principle of atomization was received with an enthusiasm which led to the expectation of great results from its use. The atomizer enables us to make application of medicated fluids to the nasal cavities in such a manner that there can be no doubt that every portion of the membrane is reached and acted upon. In this it is undoubtedly a more valuable device than the douche. We have used the sprays now for over twenty years, and we should be able to say with considerable definiteness how far they have justified the early expectations.

By their use the morbid activity of the inflamed mucous membrane is to an extent controlled, the secretion is lessened, and, if the case be a mild one, the disease may be arrested. But in the more aggravated cases, attended with a considerable degree of thickening of the membrane, the best that can be expected from the use of sprays is that the disease may be to an extent deprived of its more troublesome symptoms. A permanent cure is, as a rule, not accomplished, the disease generally returning, sooner or later, in as aggravated a form as before.

The method of treating nasal catarrh, then, by the sprays we must also regard as, to an extent, a failure. In the use of the douche and the spray, then, we have exhausted our most ingenious methods of managing this disease by means of topical medication.

I do not propose to enter upon the discussion of the use of powders. What is said as to the efficacy of sprays applies equally well to the use of powders. On the one hand we have a topical agent diluted in a diffused through the nasal cavity by means of an atomizer. On the other hand it may be equally diffused by the insufflator, but reduced by a neutral powder.

The devices alluded to failing us, then comes the final alternative of resorting to some destructive agent, by means of which the hypertrophied membrane may be ablated.

For some years there has been a growing conviction on the part of those who come in contact largely with throat diseases, that topical agents fail to accomplish all that should be accomplished in these cases, and, furthermore, that in the use of destructive agents lies the only plan of treatment which will enable us to cope, with any hope of success, with a large proportion of cases of nasal catarrh. Whether this conclusion is the true one or not I do not propose to discuss. It is a conviction which I have arrived at after a considerable experience, both in private and dispensary practice, of the frequent inefficacy of the simpler plan of treatment, and one to which an everyday experience is adding strength.

I shall therefore simply add some brief considerations in regard to the various means by which these destructive measures may be carried out.

I show here (Fig. 2) a pair of forceps with long, tapering blades, toothed in their whole length, which have been designed for the purpose of seizing the hypertrophied tissue, and partially cutting and partially tearing and wrenching it away. The operation is a bloody one, and terribly painful; it furthermore bruises and injures the healthy tissues, often to an unjustifiable extent. I have never felt myself warranted in resorting to the use of this instrument.



FIG. 2.—Robinson's forceps for the evulsion of the mucous membrane over the turbinated bone.

Chemical agents for the accomplishment of this purpose are often resorted to. Of these I shall refer briefly to nitrate of silver, nitric acid, chromic acid, and acetic acid.

There are few agents of greater value than nitrate of silver, if properly used, and few that have been more abused by improper use. It is an escharotic of undoubted activity, but it also possesses another property which is too often overlooked. It is a very powerful stimulant. Hence, in its use, while it may destroy the superficial layer of the membrane in the disease we are considering, it also stimulates the morbid processes in the deeper layer to such renewed activity that there results a morbid action there, which fully, if not more than counterbalances all that has been accomplished by the superficial cauterization. This remedy, then, I should decidedly condemn for the purpose of destroying the hypertrophic tissue in nasal catarrh. I recall with some satisfaction that in the past three years I have rarely made use of nitrate of silver of a strength greater than twenty grains to the ounce as a topical agent, with the sole exception of the use of the solid stick, in destroying mucous patches.

In nitric acid we have a powerful escharotic not open to the objection made to the nitrate of silver. It is an efficient destructive agent, possessing no marked stimulating qualities, but there lies the difficulty of controlling and limiting its action. This objection has been largely overcome by the ingenious little device of Dr. A. H. Smith, of this city (Fig. 3). This consists of a hard-rubber tube containing an oval fenestrum. This is passed into the nasal cavity until the part which it is desired to cauterize pouches into the fenestrum. A slender probe, wrapped with a pledget of cotton, is dipped in the acid and passed into the tube to the opening. The action of the acid is thus confined to that portion alone of the mucous membrane which lies against the opening in the canula. We possess no better means of using so powerful an escharotic as nitric acid. The only objection that would remain against the use of nitric acid is that it erodes deeply, and that a troublesome

ulcerative process may be established, which may become a source of annoyance by delayed healing.

Chromic acid presents in its acicular crystals an extremely convenient form of application, and is also an efficient escharotic. I am disposed to think

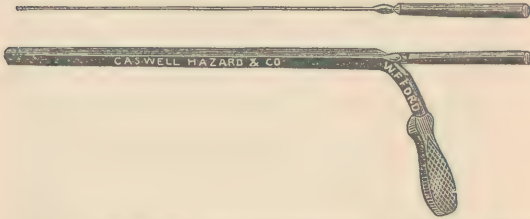


FIG. 3.—Smith's canula for applying nitric acid to the nasal mucous membrane.

it possesses many of the advantages of nitric acid and none of its disadvantages. I have, however, made such limited use of this remedy that I cannot speak of its virtues. Of all the chemical agents for cauterization my preference is very decided in favor of the glacial acetic acid. I have for nearly a year made frequent and increasing use of this agent, and I am rarely disappointed of excellent results. It is mild and yet efficient in its action. It possesses no marked stimulating qualities, and it not only serves to destroy the superficial layer of the hypertrophied membrane, but by its absorption it seems to exercise a marked controlling influence on the morbid activity of the chronic inflammatory action in the deeper layer of the membrane.

When first applied it occasionally seems to cause some irritation, as the result of which the membrane swells up, and the patient suffers for a few hours or a day with many of the symptoms of an ordinary cold in the head. This, however, subsides very soon, and there is soon voided shreddy masses much resembling a croupous membrane, after which there is a marked amelioration of all the symptoms.

I show here (Fig. 4) a small flattened and bent

probe, by the use of which the acid is very efficiently applied. This probe is wrapped with a pledget of cotton, and then the acid is taken up on another probe and dropped on the side of the wrapped probe until that side is fully charged. It will be found then that the acid is confined to one side of the probe, and that in passing it into the nares the septum is not touched by the escharotic. Of course, the acid is placed on that side of the probe which will come in contact with the turbinated bone of the side it is desired to medicate. After the probe is charged it is swept rapidly through the nasal passage in such a manner that the face of the turbinated bone is touched in its whole length. This may be repeated for the middle turbinated bone if that is diseased. The application is, of course, extremely painful, but this may be instantly relieved by throwing in immediately, by means of the atomizer, a small amount of the following :

R. Acidi carbolici..... gr. j.
 Sodæ biborat.,
 Sodæ bicarb..... ʒā gr. ij.
 Glycerin..... ʒ j.
 Aquæ..... ad ʒ j.

M. (Dobell).

This application should be made at intervals of one week, which may be increased as the disease succumbs to treatment, until two or even three weeks may be allowed to elapse between the applications. I desire to speak with some positiveness concerning the use of the acetic acid, as the results which have attended its use, in

FIG. 4.—Probe for applying acetic acid to the nasal mucous membrane.

my hands, have been uniformly favorable. As a rule, the irritation caused by it is but momentary, and

passes away before the patient leaves the office, and the sense of relief follows immediately and continues. I should add that a patient ought not be allowed to leave the office until all irritation which has resulted from the treatment has been subdued. This can always be accomplished by the use of the solution given above, it being sprayed repeatedly into the cavity until the parts are made entirely comfortable. If this fails to relieve, a small amount of solution of morphia, grs. viij. to ʒj., may be thrown into the cavity.

As before stated, the acetic acid is not a powerful escharotic, and many cases of nasal catarrh occur in which a more active method of destruction of the membrane will be demanded.

In these cases in which the hypertrophic membrane is largely developed, and in which the nasal cavity is much encroached upon, I know of no more efficient method of dealing with the disease than we possess in the use of the galvano-cautery.

The serious objection to its use is that it is not only a somewhat cumbersome affair, but it is an expensive instrument. Moreover, its use is attended with an amount of preparation and detail which renders this method of treatment oftentimes somewhat irksome. It is, however, an extremely valuable aid in managing the aggravated cases of catarrh.

I show a set of instruments which I have had constructed for my own use to fulfil the requirements of a light, easily manipulated handle, and an electrode mounted at such an angle as will still further facilitate the ease of manipulation, and also mounted in such a way as will enable the operator to follow by ocular inspection the movements of the heated wire. As will be seen, the circuit closer is immediately under the thumb when the instrument is held in the hand, and the current can be closed or opened at will. The electrode, mounted in the handle, has a vertical blade for cauterizing the face of the hypertrophied tissues.

When the thickened mass presents a rounded bulging tumor anteriorly, I find that more can be accomplished by making a linear incision along its

face, cutting well down to the vascular layer of the membrane. The result of this is a cicatrix, which, in its contraction, reduces the mass far more than

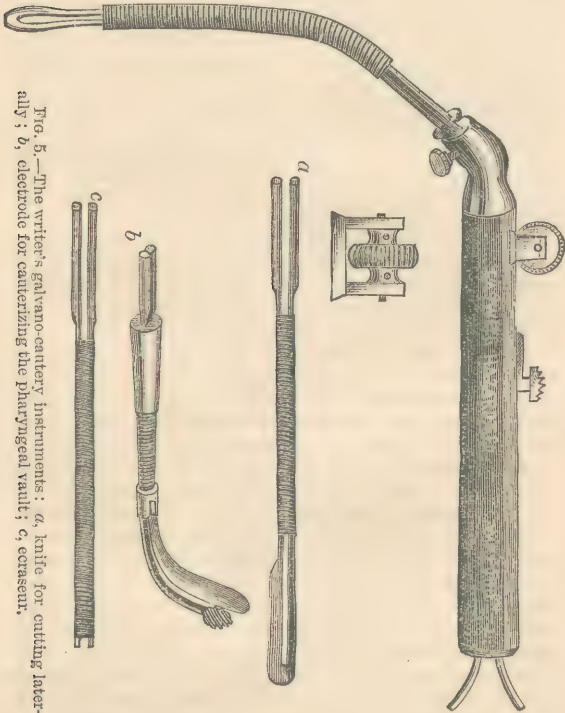
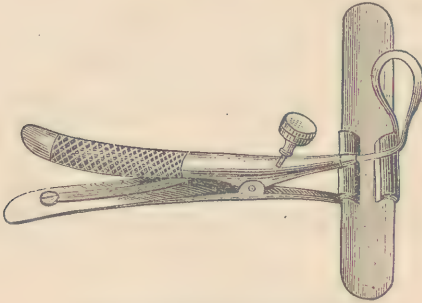


FIG. 5.—The writer's galvano-cantery instruments: *a*, knife for cutting laterally; *b*, electrode for cauterizing the pharyngeal vault; *c*, ecraseur.

occurs from the superficial burning. The instrument by which this is done is shown at *a*. As will be seen, the cutting blade occupies but one side of the electrode, and is on a horizontal plane.

In making these applications to the turbinated

bone it is well that there should be some protection afforded to the septum. I know of no better device for this purpose than the little instrument shown in Fig. 6, devised by Dr. Shurley, of Detroit. As will be seen, it consists of an adjustable speculum, to one



[FIG. 6.—Shurley's nasal speculum.

blade of which is fitted a movable slide. When the instrument is introduced, the ivory slide is passed into the cavity, and lying along the septum, affords a perfect protection to it from the heated electrode. Of course a different instrument is required for each nostril. For making application to the vault of the pharynx, the difficulty generally met with is in managing the soft palate, which lifts itself up, and of course is in danger of being burned by contact with the electrode. This may be obviated by tying the palate after the manner of Wales, or as demonstrated by myself last winter before the Academy. This, of course, consumes time, and is not always agreeable to the patient. I have devised the electrode shown in Fig. 6, for making this application without the necessity of tying the palate. As will be seen, it consists of a spiral wire, mounted at the proper curve for reaching the pharyngeal vault; over this there is fitted a hard-rubber hood. When the instrument is passed to the point at which it is desired to cauterize, it is pressed against the part, and emerges from its hood, when

the circuit may be closed and the part burned. Before removing it the circuit is broken, when it is easily withdrawn. The palate, during the manipulation, is perfectly protected and saved from any injury.

In connection with this instrument there is shown a convenient little device for an ecraseur—Fig. 6, c. The double canula, being inserted in the handle, is fitted with a wire, which is wound upon a wheel, as shown in the cut mounted on the handle, and also in a separate figure in profile. The wheel fits in a slot on the handle, and can easily be removed when not used. This device is modified somewhat from that of Dr. Shurley.

In many cases of nasal catarrh there will be found a large sessile mass at the posterior termination of the lower turbinated bone. This may be so large at times as to almost completely fill the oval opening of the posterior nares. I show here (Fig. 7) a cut of

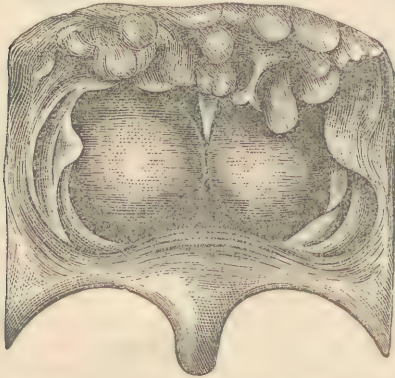


FIG. 7.—Posterior view of hypertrophy of the lower turbinated bones, from a drawing of a case of Dr. Leffert's. (From Robinson.)

a case from a drawing of Dr. Lefferts, which illustrates this not infrequent complication very graphically. This condition entails no little discomfort, and often distress, both from the occlusion of the

nares, with interruption to nasal respiration, but also from the amount of secretion which arises from it. The methods of treatment alluded to are not competent to deal with this satisfactorily, as a rule.

The little instrument shown in Fig. 8 answers so

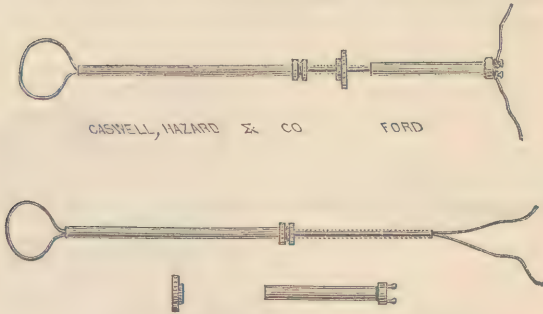


FIG. 8.—Jarvis's wire snare ecraseur.

perfect a purpose in removing these masses that it leaves nothing to be desired. It is the design of Dr. Jarvis, the assistant at the Bellevue Throat Clinic. It is an extremely simple form of wire ecraseur, and needs no description. Success in its use depends largely on the use of steel wire. The wire I always use is the No. 5 piano wire, which possesses a high degree of elasticity, together with a tensile strength which no tissue of the body can easily resist. I have, on several occasions, cut through dense fibrous tumors with this instrument.

In dealing with the condition above alluded to, the instrument is mounted with a loop, which an examination of the mass has shown to be sufficiently large to embrace it, and is then passed through the nares until the end of the loop passes the end of the turbinated bone, and is free in the upper pharynx. The loop having been bent slightly to one side before entering the nares will, by its own elasticity, slip over the mass, when it can be easily drawn into place and the tumefaction cut through. Of course

there is considerable hemorrhage as the result of this, but if the operation be done slowly, a half hour or even an hour being consumed, it may often be done without loss of blood. If, however, hemorrhage does occur, a plug of absorbent cotton can easily be passed back and wedged between the cut surface and the septum, and allowed to remain until

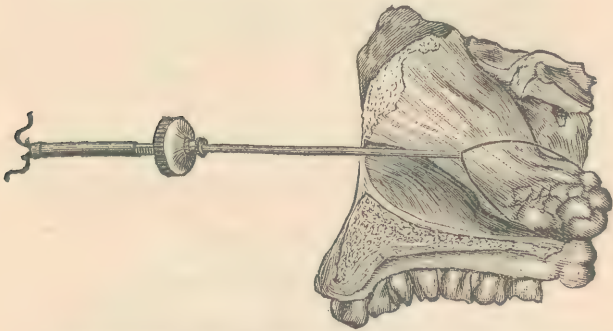


FIG. 9.—Lateral view of hypertrophy of the lower turbinated bone anteriorly, with snare in position.

the following day, if necessary. The relief attending this operation is immediate and striking.

The accompanying Fig. 9 gives a side view of this posterior hypertrophy. It is a drawing by Dr. Jarvis of a morbid specimen in his possession. There is also shown in the plate the snare in position for severing the mass.

A condition not unlike this at the posterior termination of the lower turbinate bone is frequently met with, though in a far less degree, at the anterior termination of the same bone. This consists in a rounded, puffy-looking mass, which encroaches on the lumen of the anterior nares, more or less completely filling it, and serving to obstruct materially the entrance of air.

A very simple device for removing this by means of the same snare ecrasure has been suggested by

Dr. Jarvis. This consists of transfixing the mass from below upward and backward by a long, slender transfixion needle, mounted in a suitable handle. The loop of the snare is then passed over the handle of the needle, and subsequently over its point, when that portion of the mucous membrane which has been transfixed is cut through and removed. There is thus taken out a small mass about the size of a split pea. The cut surface heals kindly, and the result in my experience has been invariably to relieve the condition of stenosis. This, of course, accomplishes what the forceps does, but it does it in an almost painless manner, and with absolutely no bruising. The hemorrhage resulting is not great, and is easily controlled by a plug of cotton inserted for a few minutes.

It will be noticed that I have confined the subject of my remarks mainly to the nasal cavity proper, to the exclusion of the vault of the pharynx. As stated at the commencement of the paper, I regard the pharyngeal vault as a part of the nasal cavities. In nasal catarrh it undergoes the same changes which occur in the other portion of the passages. This consists in a true hyperplasia. In the pharyngeal vault, however, we find that there is an extremely rich distribution of glands, giving this part the name of the pharyngeal tonsil; hence we find that in this region the inflammatory process assumes a glandular character, and we have what, if it is of an aggravated form, is generally called adenoma of the vault of the pharynx. It is extremely rare, however, to meet with this condition developed to such an extent as to warrant the name. There is, as a rule, but a moderate glandular hypertrophy which occurs in connection with the hypertrophy extending throughout the nasal cavity. It is a mistake to suppose that this region is the source of a large amount of the secretion that characterizes nasal catarrh. The main source of the discharge is in the hypertrophied tissue over the turbinated bones, and the removal of this removes the prominent features of the disease. Still it will often become necessary to use measures directed to the pharyngeal vault, for this region is

undoubtedly responsible for some of the untoward symptoms of the disease we are considering. I have already referred to the use of the galvano-cautery in this region. In my own experience we have no better method of coping with the disease there located.

To revert now somewhat and briefly. The use of the spray and douche were stated to be inefficient in more than controlling the disease. I should state that I invariably make use of the atomizer in all cases of nasal catarrh in my office work, and that I very frequently direct patients to use the douche at their homes.

The first step in all forms of treatment is the use of the carbolyzed alkaline fluid, the formula for which was given, to thoroughly cleanse the part of the accumulations of mucus. In addition to this I apply, by the same means, a mild astringent, such as tannin, gr. x.—xx. to $\frac{3}{4}$ j., zinc. sulph., gr. x. to $\frac{3}{4}$ j., potass. chlorat., \mathfrak{D} j. to $\frac{3}{4}$ j., etc., in the order of preference. These measures are in most cases, however, only regarded as aids to the other measures already enumerated. The question arises as to which of the other measures to adopt in a given case. It is, of course, extremely difficult to formulate any rule for the selection of the special plan of treatment. If there is a mass at the posterior termination of the inferior turbinated bone, such as already described, and which will admit of or is sufficiently large to engage the snare, that instrument should be used. We possess no method of dealing with this condition comparable to it. If the mass anteriorly is large, rounded, and puffy, and occludes the nostril it should be transixed and removed by the snare. It is a less painful and more efficient method than the cautery or the use of escharotics.

For those irregular and well-organized hypertrophies, which have existed for several years and which involve the continuity of the lower and middle turbinated bone, the galvano-cautery affords the best means of dealing with them.

If the disease has not existed for a long time, and the thickened tissues have not become hardened

and dense by organization, the acetic acid will accomplish all that can be hoped for.

In milder cases, not characterized by any marked degree of hypertrophy, the use of atomized fluids will serve an excellent purpose. Unfortunately, these cases are not attended with any very prominent symptom, and they do not, as a rule, present for treatment.

The other remedies, such as chromic acid and nitric acid, I do not discuss further, for the reason that I have made but limited use of them, and in what I have said to-night I have endeavored to confine myself to personal experience.

As regards the frequency of any of these applications, the same rule should be followed as was given concerning the use of the acetic acid. An interval of from one to two weeks should lie between each sitting. And here it seems to me there is an immense gain over the old plan of treating nasal catarrh. We have been accustomed to demand of our patients that they shall visit our offices daily or tri-weekly, for weeks and even months, for the very doubtful results of the douche and spray treatment, and finally, in the very large majority of cases, dismiss them with but temporary relief to a catarrh which will sooner or later return in all its virulence.

These cases reflect no credit on us. Is it not better to resort to the plan outlined above, by which we certainly do not exhaust the patience of those who come to us, and by which, with equal certainty, in my belief, a far greater degree of success is attained?

Mention should be made before closing of one of the dangers which attends the use of any destructive agent in the nasal cavity; I refer to the danger of facial erysipelas. As we know, this disease may result from an apparent extension of an acute coryza. It is easy to understand, then, how any destructive agents used in the nasal cavity may be followed by the same unfortunate accident. The immediate result of the application of a caustic to the lining of the nasal cavities is to excite virtually an attack of acute coryza, with all the symptoms of that affection—such as

intense congestion of the membrane, occlusion of the nares, profuse secretion, suffusion of the eyes, neuralgic pain, etc. This traumatic coryza would naturally tend to produce the facial erysipelas to a far greater extent than would the idiopathic coryza. The galvano-cautery is most at fault in this direction; next to this I should rank nitrate of silver, and then the nitric acid. Acetic acid, as far as I know, manifests no tendency in causing this accident. The only suggestion I can make in regard to the prevention of this accident is, that too much should not be attempted at one sitting, and that the cautery, if it be used, should not be allowed to remain in the cavity more than a few seconds at a time, and that the nares should be flooded with the douche or spray of the carbolized alkaline solution as soon as possible after the withdrawal of the cautery electrode or the escharotic.

There remains but one more unsettled question to which allusion should be made, and that is, can we cure nasal catarrh? This is an extremely difficult question to answer. I do not believe any physician, I care not what his abilities may be, or how much wisdom or skill his experience in the management of these cases may have endowed him with, is justified in promising to cure any given case of nasal catarrh of long standing; and by a cure I mean a genuine, complete, and permanent removal of all the symptoms. Many of us have cured cases of this disease, and as our experiences enlarge, as our special skill becomes better established, as our means of diagnosis extend, we will cure a still larger proportion of cases. But the ability to cure any given case involves the ability to cure all cases, and that we cannot do; and it reflects no credit upon our candor and conscientiousness if we promise to do what we know we are not safe in undertaking.

If, however, we bring to bear on each case all the means of diagnosis which are at present within our power, and doing away with that conception of nasal catarrh which regards it as an entity to be managed in a routine manner, but rather regarding it as a group of divers symptoms and conditions, each one

of which is to be dealt with in a rational way, I believe that a large proportion of cases will become amenable to treatment, and most, permanently cured. That the same conditions which gave rise to the disease originally may not operate to induce a recurrence eventually of some of the symptoms, it is not safe to say; but that they need return in the full force of the original disease need not, as a rule, be expected.

In regard, then, to the question of the curability, I do not hesitate in making the assertion, and I make it advisedly: with our present means of diagnosis and knowledge of therapeutic resources in nasal catarrh, we can permanently remove most of the features of the disease which render it a present source of discomfort, and all those that constitute it a source of danger to the more vital portions of the respiratory tract.

Before closing, I should like to add one word in regard to our means of examination for the purpose of diagnosis. From what has been said, it will be easily inferred that I regard as of the first importance a thorough exploration of the nasal cavity, and the recognition of the special morbid condition which characterizes every portion of the mucous lining.

The early history of laryngoscopy was marked by the invention of what their inventors were pleased to call laryngoscopes. The one which has gained the widest notoriety is that known as Tobold's. This instrument is constructed on certain optical principles, I take it, known only to the inventor. I never have been able to detect them. I mention this instrument as one of a class, and to illustrate this point: no arrangement of lenses or reflectors is capable of increasing the rays of light. The concave reflecting mirror converges the rays and produces a disc of light more intense only so far as its area is less than that of the flame which is the source of the light. In its passage through lenses and reflection by mirrors much of the light, on the contrary, is lost. We are too apt to think that, having furnished our offices with a Tobold, our outfit is complete, and our means of diagnosis cannot be improved upon.

The head-mirror is preferable to all the laryngoscopes that were ever invented, and should always be used when feasible, while among the poorer methods of examination I should reckon Tobold's apparatus.

The head-mirror and the rays of the sun give such a perfect illumination that no portion of the nasal cavity need escape inspection by their use, and we should not lose the great advantages of this method of examination by resorting to the use of the so-called laryngoscopes.

It seems to me, oftentimes, that the eagerness with which we seize upon new ideas is something of a commentary on the still incompleteness of our art as physicians, and that our readiness to take up the newly-advanced and novel methods is only equalled by the tardiness and, oftentimes, almost sadness with which we lay them away with the other failures in medicine. The introduction of laryngoscopy has made prominent a number of co-ordinate new methods, among which are the spray, the douche, and the various illuminating devices. We may not really lay them away with the same regret that has followed many of their predecessors, but we will necessarily be compelled to abandon much of the hope with which they were first received.

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